REMARKS/ARGUMENTS

The Office Action mailed March 25, 2004 has been carefully reviewed. Reconsideration of this application, as amended and in view of the enclosed Declarations and the following remarks, is respectfully requested. The claims presented for examination are: claims 1-35.

35 USC 103 Rejection - Bornhop et al

In paragraph 2 of the Office Action mailed March 25, 2004 claims 1-12, 15-20, 24, and 30 were rejected under 35 U. S. C. 103(a) as allegedly being unpatentable over the primary reference, U.S. Patent No. 6,381,025 (Bornhop et al Reference) in view of the secondary reference (Faubel et al).

The Bornhop et al reference is not an effective reference against the subject patent application. The invention defined by claims 1-12, 15-20, 24, and 30 was actually reduced to practice before the August 19, 1999 filing date of the Bornhop et al reference and the Applicant exercised due diligence in patenting and developing the invention during the time period between the August 19, 1999 filing date of the Bornhop et al reference until the subject application was filed on June 8, 2001. If the Examiner accepts Applicant's showing of either or both of the foregoing "Actual Reduction to Practice" or "Due Diligence" then Applicant has overcome the Bornhop et al reference.

Actual Reduction to Practice

The "RECORD OF INVENTION (ROI)" (ATTACHMENT A) in "Section XI. Reduction to Practice" provides entries for "Date first model completed" and "Date of operation and testing." The new copy of ATTACHMENT A shows the "Date first model completed" was July 1994 and "Date of operation and testing" was July 1994. The Examiner asked for an explanation of these dates and the fact subsequent documents state that work would begin in FY 97.

The ROI was completed by the inventor in 1996 and the July 1994 Date first model completed and July 1994 Date of operation and testing refer to work by the inventor before the work that would begin in FY 97. The July 1994 Date first model completed and the July 1994 Date of operation and testing were sufficient to obtain approval of the "INTEGRATED OPTIC CAPILLARY ELECTROPHORESIS MICROSENSOR" project. The July 1994 Date first model completed and the July 1994 Date of operation and testing show that the invention would work for it intended purpose and was an actual reduction to practice.

The new copy of ATTACHMENT A included with the Supplemental Declaration of Eddie E. Scott includes the "INTEGRATED OPTIC CAPILLARY ELECTROPHORESIS MICROSENSOR" project proposal and report for FY97-FY99 with all dates included. The conceptual diagram that is Figure 2 of the "INTEGRATED OPTIC CAPILLARY ELECTROPHORESIS MICROSENSOR" project proposal ATTACHMENT A is analogous to the patent drawings in the subject patent application.

The "INTEGRATED OPTIC CAPILLARY ELECTROPHORESIS MICROSENSOR" project proposal and report for FY97-FY99 ATTACHMENT A shows that previous work had been done on the subject invention and that the previous work demonstrated that the invention would work for it intended purpose and was an actual reduction to practice. The following sections of the proposal are cited as particularly demonstrating that the previous work demonstrated that the invention would work for it intended purpose and was an actual reduction to practice:

Page 1, first paragraph – "Based on the results of a recent NN-20 Advanced Concept project, a field deployable chemical microsensor module will be developed ...."

Page 2, in "Prior Work" Section – "The proposed work is a continuation of a DOE NN-20 Advanced Concept projected initiated in FY94 by the P.I. to investigate the feasibility of combing solid state laser and integrated optic (IO) component technology with micromachined planar chip capillary electrophoresis (CE) systems." (It should be noted that P.I. refers to the Principal Investigator: Anthony J. Ruggiero, the Applicant in the subject patent application)

Page 3, last paragraph – "Under Advance Concepts research in FY94-95, we explored the fundamental measurement physics, feasibility and general performance issues involved in the design of a novel all solid state ultra-sensitive universal CE detector. As illustrated in Figure 2, the device is based on two beam interferometry in a compact fiber coupled integrated optic Mach-Zehnder interferometer (MZI). One arm of the interferometer includes a small section of the CE capillary. Detection of the electrophoretically separated analyte is accomplished by monitoring the optical phase shift that results from refractive index changes in the CE capillary as different chemical species pass through the MZI sample arm." (It should be noted that "we" refers to the Principal Investigator: Anthony J. Ruggiero, the Applicant in the subject patent application and the two co-investigators.)

Page 4, second paragraph – "Results from our FY94-95 Advanced Concepts effort have established the general feasibility of this approach by : (1) demonstrating our ability to efficiently couple high quality optical beams between buffer filled CE capillaries and waveguide structures, (2) developing an actively stabilized discrete component IOCE system prototype, and (3) demonstrating detection of photo-induced absorption signals in 20 micron water filled fused silica capillaries at detection levels on the order of $2X10^{-7}$ absorbance units." (It should be noted that "our" refers to the Principal Investigator:

Anthony J. Ruggiero, the Applicant in the subject patent application and the two co-investigators.)

Due Diligence

Applicant exercised due diligence in patenting and developing the invention during the time period between the August 19, 1999 filing date of the Bornhop et al reference until the subject application was filed on June 8, 2001. In paragraph 38 of the Office Action mailed March 25, 2004, the Examiner commented about the fact that Applicant "blacked out the various dates" on the documents submitted with the declarations.

Enclosed is a supplemental declaration by Eddie E. Scott to overcome the primary Bornhop et al Reference. This supplemental declaration provides copies of The Documents with all dates included. The Documents attached to the supplemental Declaration have been maintained in the ordinary course of business of the University of California, the Lawrence Livermore National Laboratory, and the United States Department of Energy (DOE) and as an attorney for the University of California, I am one of the custodians of The Documents.

Also enclosed is a declaration by Bert Weis including attachments showing work relating to testing, developing, and patenting The Invention.

Applicant continuously worked on testing, developing, and patenting The Invention during the Time Period from August 19, 1999 the earliest effective date of the Bornhop et al reference until the subject application was filed on June 8, 2001. Applicant has been diligent during the Time Period and Applicant submits that the Bornhop et al reference is not a valid reference against the claims in the subject application.

The Time Period is approximately 22 months. This Time Period can be broke into two separate time periods, (1) the 10-month time period from August

19, 1999 until June 1, 2000 represents a period when the subject invention was assigned to the Office of Laboratory Counsel (OLC) but an application was not started; and (2) the 12-month time period from June 1, 2000 until June 8, 2001 when the subject patent application was assigned to Eddie Scott and the application was filed.

The 10-Month Time Period from August 19, 1999 until June 1, 2000

ATTACHMENT S-1 to the Supplemental Declaration by Eddie E. Scott shows that the file for the subject application "9928" was one of 174 Patent Applications requested by IPAC and that the subject invention "9928" was assigned to the Manager of the Patent Group – John Wooldridge. During the years 1999 and 2000 OLC experienced significant Patent Attorney staff problems and as a result of the OLC Patent Attorney staff problems the subject invention "9928" remained part of a back log of inventions wherein patent applications had been requested by IPAC but applications had not been started. In 1999 the OLC Patent Attorney staff consisted of four Patent Attorneys, John Wooldridge, Daryl Grzybicki, Lloyd Dakin, and Alan Thompson. One Patent Attorney, Bud Carnahan, worked as a contract attorney but was not part of the Patent Attorney staff. During 1999 one of the four patent attorneys, Lloyd Dakin, resigned on December 2, 1999. During 1999 one of the four Patent Attorneys, Daryl Grzybicki, died December 15, 1999. On March 1, 2000 the manager of the OLC Patent Attorney Staff, John Wooldridge, resigned, which left only one staff Patent Attorney (Alan Thompson). Applicant submits that there is an explanation of the fact that a patent application was not started during the 10-month time period in that as a result of the OLC Patent Attorney staff problems the subject invention "9928" remained part of a back log of inventions wherein patent applications had been requested by IPAC but applications had not been started.

The 12-Month Time Period from June 1, 2000 until June 8, 2001

I transferred to the Office of Laboratory Counsel (OLC) on June 1, 2000, which increased the Patent Attorney Staff from one patent attorney to two patent attorneys. The first six inventions that were assigned to me to prepare patent applications included the subject invention "9928" which was a NAI invention. I attended the NAI Patent Reviews during the 12-month time period. I attended the Patent Priority Meetings during the 12-month time period.

The subject invention "9928" was an invention made by a scientist at the Nonproliferation, Arms Control, and International Security (NAI) Directorate, Dr. Anthony J. Ruggiero. The mission of the Nonproliferation, Arms Control, and International Security (NAI) Directorate is to provide technology, analysis, and expertise to aid the United States government in preventing the spread or use of weapons of mass destruction. The inventor of the subject invention "9928," Dr. Anthony J. Ruggiero, is an important and very busy scientist at NAI. While he was cooperative and helpful in explaining the invention and preparing drafts of the patent application, it was difficult for me as newly within the Office of Laboratory Counsel staff to complete the final patent application. I prepared many drafts of the patent application and consulted with numerous others in preparing the patent application.

I met with the inventor of the subject invention "9928" Dr. Anthony J. Ruggiero to review drafts of the patent application and to obtain help with the preparation of the patent application covering the subject invention "9928" numerous times during the 12-month time period. I met with Annemarie Meike, the NAI representative from IPAC, regarding preparing the patent application for the subject invention 9928 during the 12-month time period. I met with a newly hired patent attorney, Ann Lee, to review drafts of the patent application and to obtain help with the preparation of the patent application covering the subject invention "9928" numerous times during the 12-month time period. I met

with a NIA scientist, Gary Johnson, to review drafts of the patent application and to obtain help with the preparation of the patent application covering the subject invention "9928" numerous times during the 12-month time period. Throughout the 12-month period from June 1, 2000 until June 8, 2001 that the subject invention "9928" was assigned to me to prepare and file a patent application, I continuously worked on preparing drafts of the patent application, meeting with the inventor and other individuals to learn more about the invention and to revise drafts of the patent application.

Since the primary Bornhop et al Reference can not be used as a reference against the claims of the subject application, the combination of the primary Bornhop et al. Reference and the secondary Faubel et al reference can not be used to render the claimed invention unpatentable. Thus, the combination of references fails to support a rejection of the claims under 35 USC 103(a), and the rejection should be withdrawn and the claims now present in the application allowed.

35 USC 103 Rejection - Krattiger et al

In numbered paragraph 11 of the Office Action dated March 25, 2004, claims 1-12, 15, 17-20, 24, 27, and 30 were rejected under 35 USC 103(a) as allegedly being unpatentable over the primary Krattiger et al reference in view of the secondary Faubel et al reference.

Applicant has amended the independent claims presented for examination; therefore the independent claims are now presented in amended form. Since the independent claims now appear in amended form the 35 USC §103(a) rejection in the Office Action mailed March 25, 2004 no longer applies.

Applicants believe that the claims now presented for examination are patentable and that the Krattiger et al and Faubel et al references would not support a 35 USC §103(a) rejection. The factual inquiries set forth in Graham v.

John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966) that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) include "Ascertaining the differences between the prior art and the claims at issue."

The differences between the primary Krattiger et al reference and Applicants' invention defined by the claims include the fact that the following elements of the amended claims are not found in the primary Krattiger et al reference:

"at least one interferometer, said interferometer including an arm and an integrated chip, wherein said separation channel and said interferometer arm orthogonally intersect each other at least once on said integrated chip," or

"at least one modulated excitation beam having a wavelength."

The elements identified above are not found in the secondary Faubel et al reference. Since the missing elements are not found in either the primary Krattiger et al reference or the secondary Faubel et al reference, there is no combination of the Krattiger et al reference and the Faubel reference that would produce the combination of elements of Applicants' invention defined by the amended claims. Also, there is no teaching of combining the Krattiger et al reference and the Faubel reference to meet Applicants' amended claims.

35 USC 103 Rejection - Brandenburg

In numbered paragraph 22 of the Office Action dated March 25, 2004, claims 1-12, 15, 17-20, 24, and 30 were rejected under 35 USC 103(a) as allegedly being unpatentable over the primary Brandenburg reference in view of the secondary Faubel et al reference.

Applicant has amended the independent claims presented for examination; therefore the independent claims are now presented in amended form. Since the independent claims now appear in amended form the 35 USC §103(a) rejection in the Office Action mailed March 25, 2004 no longer applies.

Applicants believe that the claims now presented for examination are patentable and that the Brandenburg and Faubel et al references would not support a 35 USC §103(a) rejection. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966) that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) include "Ascertaining the differences between the prior art and the claims at issue."

The differences between the primary Brandenburg reference and Applicants' invention defined by the claims include the fact that the following elements of the amended claims are not found in the primary Brandenburg reference:

"at least one interferometer, said interferometer including an arm and an integrated chip, wherein said separation channel and said interferometer arm orthogonally intersect each other at least once on said integrated chip," or

"at least one modulated excitation beam having a wavelength."

The elements identified above are not found in the secondary Faubel et al reference. Since the missing elements are not found in either the primary Brandenburg reference or the secondary Faubel et al reference, there is no combination of the Brandenburg reference and the Faubel reference that would produce the combination of elements of Applicants' invention defined by the amended claims. Also, there is no teaching of combining the Brandenburg reference and the Faubel reference to meet Applicants' amended claims.

35 USC 103 Rejection – Bornhop, Krattiger, or Brandenburg

In numbered paragraph 31 of the Office Action dated March 25, 2004, claims 21-23 were rejected under 35 USC 103(a) as allegedly being unpatentable over Bornhop, Krattiger, or Brandenburg reference in view of Faubel et al reference in view of Burns et al.

Applicant has amended the independent claims presented for examination; therefore the independent claims are now presented in amended form. Since the independent claims now appear in amended form the 35 USC §103(a) rejection in the Office Action mailed March 25, 2004 no longer applies.

Applicants believe that the claims now presented for examination are patentable and that the Bornhop, Krattiger, Brandenburg, Faubel et al, and Burns et al references would not support a 35 USC §103(a) rejection. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966) that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) include "Ascertaining the differences between the prior art and the claims at issue."

The differences between the Bornhop, Krattiger, or Brandenburg references and Applicants' invention defined by the claims include the fact that the following elements of the amended claims are not found in the Bornhop, Krattiger, or Brandenburg references:

"at least one interferometer, said interferometer including an arm and an integrated chip, wherein said separation channel and said interferometer arm orthogonally intersect each other at least once on said integrated chip," or

"at least one modulated excitation beam having a wavelength."

The elements identified above are not found in the Faubel et al or Burns et al references. Since the missing elements are not found in references, there is no combination of the references that would produce the combination of elements of Applicants' invention defined by the amended claims. Also, there is no teaching of combining the references to meet Applicants' amended claims.

Allowable Subject Matter

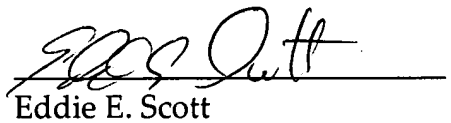
In paragraphs 33 and 34 of the Office Action mailed March 25, 2004 allowable subject matter was identified as follows: claims 28, 29, and 33-35 are

allowed, claims 13, 14, 25, 26, 31, and 32 would be allowed if rewritten in independent form. Applicant appreciates the indication of allowable subject matter.

SUMMARY

The undersigned respectfully submits that, in view of the foregoing amendments, the enclosed Declarations, and the foregoing remarks, the rejections of the claims raised in the Office Action dated March 25, 2004 have been fully addressed and overcome, and the present application is believed to be in condition for allowance. It is respectfully requested that this application be reconsidered, that the claims be allowed, and that this case be passed to issue. If it is believed that a telephone conversation would expedite the prosecution of the present application, or clarify matters with regard to its allowance, the Examiner is invited to call the undersigned attorney at (925) 424-6897.

Respectfully submitted,



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Dated: June 24, 2004